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NOTES ON SOME AFRICAN THECLINAE (LEPIDOPTERA:
LYCAENIDAE)¹

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RECEIVED FOR PUBLICATION SEPT. 20, 1962

Abstract Locality records of the West African sibling species *Dapidodigma hymen* Fabricius and *D. demeter* Clench are given and the distributions mapped and discussed, showing an area of sympatry from Ghana to Nigeria. The distribution, subspecies and characters of another two sibling species are given: *Iolaus (Iolaus) eurisus* Cramer (Sierra Leone to Nigeria) and *I. vexillarius* (Senegal to Gabon). *Iolaus (Iolaus) bolissus* Hewitson is divided into three subspecies: *bolissus* (western Congo), *azureus* (Cameroun, Liberia) and *aurora* (Uganda). *Iolaus (Epamera) aphnaeoides aethes* is described from Cameroun (the species previously was known only from eastern Africa).

THE DISTRIBUTION OF *Dapidodigma hymen* F. AND *demeter* CLENCH

When I recently discriminated these two species (Clench 1961, *Ann. Carnegie Museum* 36: 49-62, pl. 1) material was available from only a few localities: several in Liberia, representing *hymen* Fabricius; two in southern Cameroun, representing nominate *demeter* Clench; and one in Katanga, representing *demeter nuptus* Clench. As pointed out in that paper, *demeter* was considered specifically distinct from *hymen* chiefly because of the dif-

¹ Published pursuant to work as collaborating investigator on National Science Foundation grant No. G-14048.

ference in position of the male scent patch on the hind wing above, a structural trait more likely to indicate full species than subspecies difference. Since in other respects the two forms are strikingly similar, and since available records showed no evidence of distributional overlap, the possibility could not be excluded that *demeter* was only a subspecies of *hymen*.



Fig. 1 Distribution of *Dapidodigma hymen* Fabricius and *demeter* Clench. Open circles, *D. hymen*; solid triangles, *D. demeter* (subspecies not differentiated); open triangles, presumed *D. demeter* (records based solely on females).

Thanks to the efforts and interest of Messrs. Henri Stempffer, of Paris, and T. H. E. Jackson, of Kitale, Kenya, a large number of new localities can

now be given for both forms. Mr. Jackson sent records taken from his collection; M. Stempffer sent records from his collection of African Lycaenidae and also listed all records in the collection of the British Museum (Natural History), during a recent visit there, and sent them on as well. These locality records are given below, with the following abbreviations: J, coll. Jackson; S, coll. Stempffer; C, coll. Carnegie Museum; B, coll. British Museum.

Dapidodigma hymen.

Sierra Leone (type locality of *hymen*): no further data (B); Moyamba (B); Kholifa (B). Liberia: Kpain (S); Harbel (C); Ganta (C); Wanau Forest, nr. Ganta (C). Ivory Coast: Bingerville (S, B); Guiglo (B); Abidjan (S). Ghana: Sunyani Coomassie (B); Friapere Forest, Coomassie (B); West Ashanti (B); Kumasi² (B); Ho (S); Kpandu (S.) Nigeria: Bonny (B); Ubiaja (Benin) (J, B); Warri (B); Oshodi (Lagos) (J, B); Lagos (S); Mkfot (J); Ndebizi (Calabar) (J); Lafiagi (N. Nigeria) (B); Mamu Forest, nr. Awka (Onitsha) (S). Cameroun: Johann Albrechts Höhe (B). In addition, the following extremely doubtful records are based on females only: S. Cameroun: Bitje (B). Gabon: no further data (B). I suspect these to represent *demeter*.

Dapidodigma demeter (subspecies not differentiated).

Ghana: no further data (B); Kumasi (♀ only, B). Nigeria: Ubiaja (Benin) (J, B, S); Bende (B); Mamu Forest, nr. Awka (Onitsha) (S, J). Cameroun: no further data (B); Bitje (♀ only, B); Efulen (type locality of *d. demeter*) (C); Asandik, 83 mi. SE of Efulen (C). Gabon: no further data (B); Ogove (♀ only, B). Former French Congo: Ketta Forest (Ouessou) (J, S, B). Congo: forest on watershed between Ituri and Lindi Rivers, SW of Avakubi (Oriental) (♀ only, B); Kabongo (Katanga) (type locality of *demeter nuptus*) (C). Sudan: Tambura (B). Uganda: Metu (West Madi) (B). Angola: no further data (B); Benguella (♀ only, B). In addition there is a very doubtful record (♀ only): Gambia: no further data (B). It may represent *hymen*.

In addition to providing a fairly complete picture of the distributions of the two species (fig. 1), these records also show that there is a definite area of overlap, thus demonstrating that we are indeed dealing with two distinct species. *D. hymen* ranges from Sierra Leone (perhaps Gambia) eastward to Nigeria, apparently confined to Upper Guinea. *D. demeter* ranges from Ghana eastward to northwestern Uganda, south to the Angola and Katanga. From Ghana to southern Nigeria the two are sympatric.

SUBGENUS *Iolaus* (*Iolaus*) HÜBNER

In the recent revision of the genus *Iolaus* by Stempffer & Bennett (1958, Bull. I.F.A.N. (A) 20: 1343 ff.) three species are recorded in this subgenus: *eurisus* Cramer, *bolissus* Hewitson and *carina* Hewitson. Two of these,

² I think that "Coomassie" and Kumasi" are the same; the latter is the conventional spelling.

bolissus and *carina*, are extremely similar and difficult to separate. It now appears that "*eurisus*" as heretofore conceived must be divided into two species, also extremely similar. Further, they appear to be geographically variable and extensively sympatric, a combination that undoubtedly has contributed to their not having been recognized until now.

Again I must thank M. Stempffer for his invaluable assistance. He carefully recorded the characters and localities of all specimens in his own collection (S, in records below) and in that of the British Museum (Natural History) (B), enabling me to give here a much more extensive picture of both distribution and geographical variation than would have been possible otherwise.

In fairness I must add that M. Stempffer does not share my conclusions regarding *eurisus* and *vexillarius*, particularly their specific distinctness. He maintains, in substance, that only one variable species is involved and that specimens occur which show mixed characters.

Iolaus (Iolaus) eurisus Cramer

Thanks chiefly to M. Stempffer's observations it is possible to recognize two subspecies of this species, though I have seen material myself of only one of them. The species as a whole appears to be confined to Upper Guinea.

Iolaus (Iolaus) eurisus helius Fabricius (new status)

Papilio helius Fabricius 1781, Spec. Ins. 2: 112 (Sierra Leone, etc.).

Iolaus eurisus: auctorum, partim.

Iolaus (Iolaus) eurisus: Stempffer & Bennett 1958, Bull. I.F.A.N. (A) 20: 1343, fig. 108 (partim).

The male above has the fore wing blue band with its anterior edge parallel to, but lying well below, Cu_2 ; only a tiny, wedge-shaped piece of the blue in the cell; on the hind wing the longest tail (at 2A) is solid black save for the white tip. Below, the ground color is brownish; the fore wing postmedian line usually with its segment in Cu_2-2A very short, abruptly angled outward; all lines of both wings grey-brown, without orange tint.

On the upperside of the female the basal blue suffusion of the fore wing usually does not extend into the base of Cu_1-Cu_2 and leaves a broad white area; on the hind wing the postmedian line is usually indicated only in M_1-Cu_1 . On the underside of the fore wing the postmedian line segment in Cu_2-2A is usually short, angled outward as in male; the ground color is nearly pure white and the tail at 2A has central orange only briefly in extreme base.

REMARKS The Fabrician name *helius*, long placed in the synonymy of *eurisus*, appears by virtue of its given type locality to be available for this western subspecies. The above description was prepared (primarily as an aid to discriminating *vexillarius*, below) from a long series coming from various localities in Liberia, chiefly Harbel (R. M. Fox). Stempffer mentions specimens from Abidjan, Ivory Coast, as substantially the same. The subspecies, then, ranges from Sierra Leone to Ivory Coast, where more or less abruptly it gives way to the next.

Iolaus eurisus eurisus Cramer

Papilio eurisus Cramer 1779, Pap. Exot. 3: 47, pl. 221, figs. D, E ("près de Delmine" [? = Elmina, Ghana]).

Iolaus thurawi Suffert 1904, Iris 17: 67 (Misahöhe, Togo).

Iolaus emma (nec Suffert; error): Druce 1910, Ill. Afr. Lycaen.: 17, pl. 7, figs. 2, 2a.

Iolaus eurisus: Aurivillius 1923, in Seitz, Grossschmett. Erde 13: 403, pl. 69a (*partim*; sinks *thurawi* to *eurisus*); Stempffer & Bennett 1958, Bull. I.F.A.N. (A) 20: 1343, fig. 108 (*partim*).

Through some mix-up, Druce's (*op. cit.*) text and plate explanations for the figures of the types of *emma* Suff. and *thurawi* Suff. became transposed, so that the figure of the *thurawi* is labelled "*emma*" and vice versa.

Stempffer (*in litt.*) describes specimens from Ho, Ghana (S), and Lagos, Nigeria (B), as being paler below than the preceding subspecies. Insofar as can be determined this is also true of Cramer's figure, presumably representing a specimen from Elmina, Ghana, and Druce's photographic plate of the type of *thurawi*, from Misahöhe, Togo. This subspecies, then, ranges from Ghana to Nigeria. The area of change from *helius* to *eurisus* appears to correspond rather closely with the major break in the Upper Guinea coastal rainforest belt which occurs in Ghana.

Iolaus (Iolaus) vexillarius n. sp.

Iolaus eurisus: *actorum*.

Differs from *eurisus* in these particulars (comparison is made with *eurisus helius* from Liberia):

In the male above, the blue on the fore wing fills the basal third or so of the cell; its anterior edge touches the origin of Cu_2 but distally departs from that vein progressively so the blue is thicker basally than distally; the hind wing tail at 2A is orange centered for half or more of its length. Below the ground color is slightly paler brownish; the fore wing postmedian line with its segment in Cu_2 -2A nearly or quite complete, convexly bowed or angled, rarely posteriorly obsolescent, though always fainter than the rest of the line; postmedian lines of both wings (save for that segment) and cell-end dash on fore wing all brown, lustrous orange in certain lights.

The female above has the fore wing blue extending distally to the origin of Cu_1 , leaving the white area slender and comparatively sharp. Hind wing postmedian line heavy and continuous across the wing. Below, the postmedian line segment in Cu_2 -2A of the hind wing is usually complete as in the male, and convexly bowed. On the hind wing the long tail is centrally orange almost to tip.

MALE GENITALIA fig. 2. Not different from those of *eurisus*. Note the asymmetrical falces, one acuminate and the other blunt, an apparently constant trait of both *eurisus* and *vexillarius*, as well as of *bolissus* and *carina*.

HOLOTYPE male, Batanga, Cameroun, 23.v.1912 (*leg.* A. I. Good); 13 paratypes: 2 males, 3 females, same locality and collector, resp. 6.vi.1911, 26.vi.1911, 13.vii.1911, 27.vii.1911, 10.xii.1910; 6 males, Bule Country [S. Cameroun] (*leg.* [A. C.] Good); 1 female, Elat, Cameroun, 14.v.1923; 1 male, Nkoolong, Cameroun, 30.v.1911 (*leg.* A. I. Good). C. M. Ent. type series no. 445.

REMARKS. Like *eurisus* this appears to be a polytypic species, though available material is too limited to permit formal recognition of the fact. Three subspecies may be distinguished:

(a) The nominate subspecies. From Batanga and the "Bule Country"

in Cameroun, as above described. Stempffer lists specimens in substantial agreement from Bitje, Cameroun (1♂, B) and Ikom, S. E. Nigeria (S).

(b) Gabon subspecies. The male is paler below, cream instead of brownish. The female does not appear to differ. A male and a female are at hand from Cape Lopez, Gabon (C). Stempffer lists (and similarly describes) specimens from Port Gentil, Gabon (S) and Mayoumba, Gabon (S).

(c) Upper Guinea subspecies. Males with blue above at least sometimes rather paler; male below with whitish ground. Specimens known from: Dakar, Senegal (S); Konakry, Rep. Guinea (S); Sierra Leone (B); Accra, Ghana (C); Lagos, S. W. Nigeria (S).

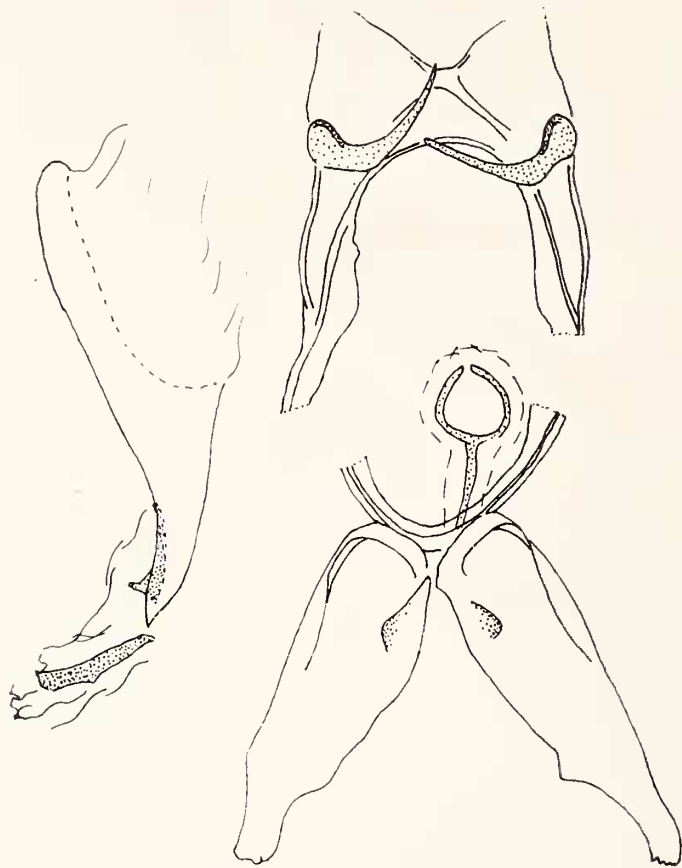


Fig. 2 *Iolaus (Iolaus) vexillarius* n. sp. ♂ genitalia.

Iolaus (Iolaus) bolissus Hewitson

This species was originally described from a male taken in "the Congo"—presumably near the mouth of that river. Six males and a female are at hand from this region (near Leopoldville, *leg.* Antidel; C) and show these characters:

MALE Length of fore wing 16.5-18 mm. (mean of six, 17.5 mm.); blue above violet-tinged; fore wing terminal border with its inner edge crossing wing well beyond cell-end (at about one-third the distance from it to termen); the border tapering to a thin line, about half a millimeter thick, at tornus. Underside with the red tornal and cubital spots usually bright and rather extensive. Fore wing with apical suffusion of brownish rather pale and hardly noticeable.

FEMALE Length of fore wing 19 mm. Fore wing fuscous border about as in male, tapering posteriorly to about 1 mm. thickness of tornus. Both wings largely pale, slightly violaceous, blue.

Iolaus (Iolaus) bolissus azureus new subspecies.

MALE Length of fore wing 18 mm.; blue above without violet tinge; inner edge of fore wing terminal border intersecting cell-end about between origins of M_3 and Cu_1 ; the border tapering to a width of about 2 mm. at tornus, somewhat thicker at vein 2A than midway between Cu_2 and 2A. Under side with tornal and cubital red spots rather bright and extensive. Fore wing with marked apical brownish suffusion.

FEMALE Unknown.

HOLOTYPE male, Metet, Cameroun, 19.vi.1923 (*leg.* A. I. Good), C. M. Acc. 7798; ♂ genitalia slide no. C-940; C. M. Ent. type series no. 447.

REMARKS A second male is at hand from Liberia (*leg.* A. C. Good, no further data), agreeing with holotype extremely closely.

Iolaus (Iolaus) bolissus aurora n. subsp.

MALE Length of fore wing 13.5–15.5 mm., mean of eight, 14.4 mm. Blue above without violet tinge; inner edge of fore wing terminal border crosses just beyond cell-end, touching upper corner of cell, well beyond origin of M_3 ; the border tapering to a thin line, about half a millimeter thick, at tornus. Underside with red tornal and cubital spots usually small and inconspicuous, more orange than red. Fore wing apical suffusion of brownish slight, hardly noticeable.

FEMALE Length of fore wing, 13–16 mm., mean (of ten), 14.7 mm. Fore wing fuscous about as in male save that at tornus it is about 1.5 mm. thick.

HOLOTYPE male, 7 male and 18 female paratypes, Kyondo, Queen Elizabeth Park, Uganda, vi-vii.1961 (*ex* T. H. E. Jackson). C. M. Acc. 19988; C. M. Ent. type series no. 446.

REMARKS The differences between the three subspecies are summarized in the following table. Details on the characters are in the above descriptions.

Character	<i>bolissus</i>	<i>azureus</i>	<i>aurora</i>
Size	large	large	small
♂ upfw fuscous border at tornus	thin	thick	thin
♂ color upperside	violet-blue	blue	blue
Unfw apical brown shade	slight	marked	slight
Uuhw tornal & cubital red spots	large, red	large, red	small, orange

As may be seen the subspecies differ from one another in several traits, enough to suggest that nominate *bolissus* is more or less intermediate between the other two, though not precisely so.

Iolaus (Epamera) aphnaeoides aethes n. subsp.

MALE UPSIDE Fore wing blue not reaching end of cell and barely surpassing origin of Cu_2 . Border of hind wing about an interspace width in thickness, in 2A- Cu_2 - Cu_1 edged distally by a thin white line in each interspace; in 2A- Cu_2 with a faintly paler blue bar based, in turn edged basally by a fine fuscous line.

UNDERSIDE All bars are orange-yellow, about as in *diametra* Karsch, and all are edged with black throughout. Terminal orange border nearly touching the subterminal row of very prominent black dots on both wings.

HOLOTYPE male, Efulen, Cameroun, 12.xi.1925 (*leg.* H. L. Weber), C. M. Acc. 8190. C. M. Ent. type series no. 448.

REMARKS *I. aphanoides* has hitherto been considered a purely East African insect, divided into four subspecies: *aphnaeoides* Trimen s.s. (Cape Province to Tanganyika and Katanga), *diametra* Karsch (Tanganyika, Kenya, Katanga), *nasissii* Riley (Kenya, Tanganyika), *mafugae* Stempffer & Bennett (Uganda). In nominate *aphnaeoides* the bars of the underside are dark orange; in both *aphnaeoides* and *diametra* the blue on the fore wing above distinctly surpasses the origin of vein Cu_2 ; in *nasissii* the orange bars below are only partially edged with black; in *mafugae* the subterminal dots below are either absent completely (fore wing) or very small (hind wing). In all these subspecies the terminal orange below is widely separated from the dots, particularly in the apical region of the hind wing.